

of multiplication by division, are not sufficient to explain all cases of cell-development,—I allude particularly to the production of free cells in the cavity of a parent-cell, such as occurs in the formation of spores and pollen. Supposing that this is not effected in the way described by Schleiden, namely by development from nuclei, it is necessary to suppose either with Nägeli that the primordial utricle divides into distinct portions and becomes detached from the cell-wall before it begins to secrete membrane, or that the new cells formed within the parent-cell in a manner represented in the figures, subsequently become free by the solution of those layers of membrane deposited immediately upon the primary wall.

This is a subject of considerable difficulty, especially as an internal formation, such as is implied in all these theories, throws no light upon the external markings which are produced in definite arrangements or pollen grains, spores, &c. These points remain for future investigation.

#### EXPLANATION OF PLATE VIII.

Fig. 1. Very young capitate hairs from the scales of the buds of *Achimenes grandiflora*; treated with iodine.

Fig. 2. Somewhat older specimens.

Figs. 3, 4. Older specimens exhibiting the continuation of the primordial utricle through the whole length; kept in spirit some days.

Figs. 5, 6, 7, 8. Specimens where some of the septa are incomplete, others perfect; treated with iodine.

Fig. 9. The lower part of fig. 8. more highly magnified, exhibiting the new internal membrane.

XL.—*Notice of a Surf Scoter, Oidemia perspicillata, Linn. (sp.), obtained on the coast of Ireland.* By WILLIAM THOMPSON, Pres. Nat. Hist. and Philos. Society of Belfast.

A BEAUTIFUL adult male bird of this species was shot at Ballyholme, Belfast Bay, on the 9th of September 1846, by Snowden Corken, Esq. It was alone, about two hundred yards from the shore, allowed three shots to be fired at it before attempting to dive, and was killed at the fourth or fifth shot, on reaching the surface after having dived\*. Two birds of this species had a day or two before been observed in company in the same locality, and one was seen several times in the course of a few weeks after the subject of this notice had been killed. "The weight of the specimen was 1 lb. 14 oz.; its length 21 inches; wing from carpus

\* Audubon remarks, that "it is an uncommonly shy bird, and therefore difficult to be obtained, unless shot at while on wing, or when asleep, and as it were at anchor on our bays, or near the shore, for it dives as suddenly as the Velvet and Scoter Ducks, eluding even the best percussion-locked guns."—Orn. Biog. vol. iv. p. 163.

to point of quills 9 inches 2 lines ; tarsus 1 inch 6 lines ; middle toe and nail 2 inches 8 lines ; breadth across the wings 27 inches," as noted during my absence from home by Dr. J. D. Marshall, but for whose kindness, and the considerate attention of Mr. Darragh (Curator of the Belfast Museum), I might not have had the opportunity of seeing the bird, and certainly could not have known the kind of food which it procured on our coast, or the form of its trachea. The contents of the stomach, preserved for my inspection, consisted of ten perfect specimens of *Nucula margaritacea*, from small to adult size, and a portion of the shell of a very large *Solen pellucidus*, with fragments of the shells of other species. The bay where this bird was shot is of a sandy nature, such as Wilson remarks is frequented by the species on the coast of North America. The only Mollusca that he particularises as its food is "spoutfish" (*Solen*), one of which was found in the present specimen: this and "small bivalve shell-fish," he remarks, are its principal food. As the species of *Nucula* mentioned is generally dredged in from three to five fathoms (18—30 feet) water in Ballyholme Bay, we must suppose that the bird dived to that depth to obtain these shell-fish:—a supposition in accordance with Audubon's remark, that this species "is frequently observed fishing at the depth of several fathoms."

All the general descriptions of the colours of the Surf Scoter sufficiently mark the species, but none that I had read gave me a proper idea of the beauty of the head and bill—more especially of the latter—as exhibited in the bird before me. Its entire plumage is of a rich black colour with a reddish violet reflection, excepting the pure white marking in front of the head between the eyes, and that of the same colour extending down the nape. The former is heart-shaped,  $1\frac{1}{4}$  inch in length, and the same in breadth ; the latter occupies  $2\frac{3}{4}$  inches in length, is 10 lines in breadth at the top, and gradually narrows downwards to a point. The irides are pure white. A peculiar and handsome feature is presented in the plumage advancing so far down the ridge of the bill as to be half-way between its lateral base and the tip, and in a vertical line with the nostrils. The whole of the elevated portion of the upper mandible next the frontal base is of a carmine-red shading into rich yellowish orange, which occupies the portion from the nostrils forward to the unguis, this being of a paler shade of the latter colour. The anterior half of the space between the nostrils and the lateral base of the bill is white of a pearly lustre ; the posterior half chiefly occupied by a nearly square black spot (7 lines in diameter) in a "setting" as it were, of three colours ;—the portion of the mandible between it and the lateral base (a line in breadth) being carmine-red ; that above it gamboge-yellow ; below it white, of a pearly lustre as it is an-

teriorly. Under mandible white, except towards the nail, where it is orange; nail a mixture of white and brownish orange. Legs and toes deep red, inclining a little to orange, and blotched more or less with black; this latter being the colour of the webs and nails, with the exception of one nail, which is white.

A very full description of the trachea of the Surf Scoter, with measurements of the different portions, is given by Audubon (vol. iv. p. 166), who correctly remarks, that it presents the same structure as that of the Velvet Duck (*Oid. fusca*).

The *specific* differences however seem to me worthy of being figured—which in so far as I am aware has not yet been done—and for that purpose I have made a drawing of the trachea of the present specimen. This, for the sake of comparison with that of the Velvet Duck figured by Yarrell, has been drawn on the same scale. It will be seen from my figure, that the Surf Scoter, as well as the species just named, exhibits within the upper expansion of the trachea “an aperture on each side,” &c., as particularly noticed in the case of the Velvet Duck by Mr. Yarrell (B. B. vol. iii. p. 219, 1st edit., or p. 316, 2nd edit.).

	in.	lin.
Length of trachea of Surf Scoter (see figure) } from <i>a</i> to <i>a</i> .....	7	0
Breadth of trachea at <i>b</i> .....	0	9
Length of enlargement marked <i>c</i> .....	1	0
Breadth of enlargement marked <i>c</i> .....	1	2
Length from the base of the lower enlargement to the origin of the two inferior tubes } —marked <i>d</i> .....	0	9
Length of fleshy process marked <i>e</i> .....	0	3
Length of fleshy process marked <i>f</i> .....	0	11

Although the *peculiar* form of the trachea, as well as the external characters, generally place this species next to the Velvet Scoter, yet in the form of the bill the two species differ very considerably. This difference has been admirably pointed out by Mr. Selby in the following words:—“ In this species [*Oid. perspicillata*] the bill has not that flatness and expansion in front of the nostrils that are so conspicuous in *Oid. nigra* and *Oid. fusca*, but assumes, in a great degree, the characters of the succeeding genus *Somateria* (Eider), by the tip being suddenly contracted, and the nail (which is also more convex than in the other species) being brought to a narrow rounded point; the entering angle of the forehead also projects, as in the common Eider, as far as the nostrils. The lateral parts of the bill at the base are very tumid, and are particular from the marking there displayed, these swellings being entirely exposed, and not in part concealed



by the feathers, as in the Velvet Scoter\*." The highly arched form of the bill above the nostrils requires however especial notice†. In the absence of a figure, some idea may perhaps be given by the following two notes of its depth:—

	in.	lin.
Depth of bill at base of ridge where plumage terminates—	}	0 10½
16 lines from tip .....		
Depth of bill at 10 lines from tip.....	0	3
Length of bill above (not following curve) .....	1	4
Length of bill to rictus .....	2	6
Length of bill to base of lateral protuberances .....	2	4
Breadth of bill between the lateral protuberances .....	1	4

The specimen which has furnished the subject of this communication was in course of being preserved for Dr. Charles Cupples of Lisburn, who on being informed of its rarity most liberally presented it to the Belfast Museum.

The Surf Scoter is known only as a British species from its having been obtained at the Orkney and Shetland Islands, with the exception of one individual, recorded by Mr. Gould as obtained in the Firth of Forth, and "a recently shot one sent to Mr. Bartlett for preservation," as noticed in Yarrell's work, vol. iii. p. 322, 2nd edit., but the locality where it was killed is not mentioned—the "Naturalist, vol.iii. p.420," is referred to for the original notice of this specimen.

Wilson (briefly) and Audubon (very fully) give interesting descriptions of the habits, &c. of this species, which is common on the North American coast, increasing in numbers northward.

XLI.—*Descriptions of new or imperfectly described Diurnal Lepidoptera.* By EDWARD DOUBLEDAY, Esq., Assistant in the Zoological Department of the British Museum, F.L.S. &c.

[Continued from vol. xvii. p. 26.]

Fam. PAPILIONIDÆ.

Genus PAPILIO.

*Pap. Anticrates.* Pap. alis anticis trigonis, posticis caudatis, omnibus albis, marginibus externis nigris, anticarum linea transversa, interrupta alba, posticarum lunulis sex albis notatis, anticis fascii quinque, posticis duabus nigris. Exp. alar. 3 unc. vel 75 mill.

*Hab.* Silhet.

Above, wings white, with a broad black border along the outer

\* *Illust. Brit. Orn.* vol. ii. p. 335.

† Yarrell's figure of this species is admirable, with the single exception of the peculiar form of the bill not being represented. The arched profile of the upper mandible in the specimen under consideration (probably from its being a very old male) is still more strongly marked than in Mr. Selby's figure, representing a male bird of life size.